

LAND PROTECTION PLAN

Nisqually National Wildlife Refuge Thurston and Pierce Counties, Washington

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APPENDIX K

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Land Protection Plan

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1.1 INTRODUCTION

The U.S. Fish and Wildlife Service (Service) has prepared this Land Protection Plan identifying the habitat protection methods that could take place for lands within Alternative D (Preferred Alternative) described in the Comprehensive Conservation Plan and Environmental Impact Statement (EIS) and for lands within the approved boundary of the Nisqually National Wildlife Refuge (Refuge). This plan also includes a priority listing of lands to be considered for acquisition within the proposed boundary and within the approved boundary.

1.2 PROJECT DESCRIPTION

Nisqually Refuge is located in Thurston and Pierce counties along southern Puget Sound (EIS, Figure 1.1-1). The Refuge was established in 1974 to protect the existing estuary from development. The approved Refuge boundary is approximately 3,936 acres. The acquisition program is ongoing and the Service has acquired approximately 2,925 acres in fee title, conservation easements, and leases to date within the approved refuge boundary. Non-refuge lands within the approved boundary total approximately 1,011 acres.

The proposed expansion would add approximately 3,479 acres for a total authorized boundary of 7,415 acres. The expansion would include 512 acres of upland habitat and 2,963 acres of floodplain, riparian, and wetland habitat. The boundary would increase habitat protection on the East Bluff north of I-5 to include a forested corridor. It would also extend the boundary south of I-5 to include floodplain, bluff, wetland, and upland forested habitats along the Nisqually River and McAllister Creek.

McAllister Creek Area: McAllister Creek originates from springs and seeps located approximately 3 miles south of Interstate 5 (I-5). It flows northerly along the base of forested bluffs, passing through the Refuge and emptying into Puget Sound. Medicine Creek originates near the Nisqually River and meanders west through developments and agricultural lands until it meets McAllister Creek.

Early in the century, the area surrounding the southern portions of McAllister Creek was likely covered with riparian forest habitat and freshwater wetlands until the majority of it was harvested, diked, and drained for use as cropland and pasture. Today, much of the McAllister Creek watershed south of I-5 continues to be maintained as pasture and cropland with dikes.

The area contains freshwater wetlands in the form of potholes and upland depressions. Wetland vegetation includes sedge stands, cattails, bulrushes, willows, salmonberry, and skunk cabbage. The headwater springs of McAllister Creek are surrounded by upland forest habitat consisting primarily of second growth Douglas-fir. The agricultural lands would provide grassland habitat and restoration opportunities for riparian forest habitat and freshwater wetlands.

The agricultural lands south of I-5 are currently used by migratory waterfowl for foraging and resting during localized flooding events in the fall and winter period. Common waterfowl species include American wigeon, mallards, pintails, green-winged teal, and Canada geese.

As the high tides cover the estuary, shorebirds are pushed inland and can be found using the agricultural lands along McAllister Creek. Typical shorebird species found include dunlin, dowitchers, western and least sandpipers, common snipe, and yellowlegs.

The creek historically contained seven species of salmon and trout, specifically chinook, coho, chum, and pink salmon, cutthroat and bull trout, and steelhead. Remnant runs of chinook, coho, and chum salmon, bull trout, and steelhead continue to return.

East Bluffs: The bluffs located along the eastern edge of the study area are covered with upland forest dominated by conifers. Douglas-fir is predominant, mixed with bigleaf maple, western hemlock, and red alder. The area drains directly into that portion of the Nisqually River located within the Refuge. The forest habitat located in the east bluff area provides habitat for passerines, woodpeckers, and raptors. A bald eagle nest has been reported on the bluff. The area also serves as a migration corridor for mammal species moving from one habitat to another.

Nisqually Valley and River Corridor: The Nisqually Valley and River corridor consists of agricultural lands, freshwater wetlands, and the riparian corridor contained within upland bluffs on the east rising from the river valley. The riparian corridor contains relatively undisturbed floodplain forest, backwater areas, and freshwater wetlands. Black cottonwood, red alder, bigleaf maple, Douglas-fir, and western red cedar are the dominant tree species found in the riparian corridor. The statewide significance of this area is documented in a proposal completed by The Nature Conservancy in December of 1993 which proposed the establishment of a Research Natural Area along a portion of the Nisqually River. The forested bluffs in the Nisqually River portion of the area include species such as red alder and bigleaf maple, with scattered coniferous species including Douglas-fir and western red cedar and is located on the east side of the Nisqually River.

The large and relatively undisturbed floodplain forest, backwater areas, and freshwater wetlands along the corridor provide an exceptionally productive ecosystem. Examples of species that use these types of habitats are the Pacific giant salamander, red-legged frog, tailed frog, great blue heron, harlequin duck, wood duck, belted kingfisher, American dipper, water vole, beaver, and

river otter. The threatened marbled murrelet has been seen along the corridor and other inhabitants include passerines, woodpeckers, and raptors.

Ten species of salmonids occur in the Nisqually River system. Chum, coho, and chinook salmon and steelhead all have distinct and healthy stocks in the river, although these runs are decreasing. The Nisqually River chinook is listed as threatened under the Endangered Species Act. Historical populations of bull trout, currently listed as threatened in Puget Sound, may exist in the Nisqually River.

1.3 THREAT TO OR STATUS OF THE RESOURCE

The South Puget Sound area is experiencing rapid growth in residential, resort, and recreational development. Many of these developments threaten the integrity of coastal ecosystems that support existing fish and wildlife populations.

The agricultural land in the McAllister Creek drainage falls within Thurston County, Washington. Thurston County recently purchased development rights on an estimated 840 acres from several of the landowners in an attempt to preserve the agricultural emphasis of the area and to prevent development of high density residential housing. The restricted development rights do allow for the conversion of agricultural lands into plant nurseries which are becoming popular in Washington. Currently, the agricultural lands contain some habitat values for migratory birds and small mammals. Conversion of these lands into nurseries occupied with greenhouses would essentially eliminate habitat values.

Some of the area along the Nisqually River falls within the Fort Lewis Military Reservation and is an excellent example of native bottomland riparian forest habitat. Unregulated use by the public has resulted in the creation of dirt roads along some of the river corridor. This unregulated use is causing habitat degradation and threatens the integrity of the native habitat. A limited amount of military training occurs in a portion of the proposed Research Natural Area.

Thurston County, located west of the Nisqually River, requires a 200-foot setback from the bluffs because of a concern for unstable soil conditions along the bluffs. Pierce County, located east of the Nisqually River, allows for construction along the top of the bluff with no required setback. Weyerhaeuser Company currently has plans to develop approximately 400 acres along the top of the bluffs, adjacent to the eastern boundary of the Refuge. There is a concern that developments adjacent to the top of the bluffs would cause increased siltation with corresponding degradation of water quality in the Nisqually Delta, fragment habitat, and compromise the visual landscape of the bluffs from the Refuge and other parts of the delta.

1.4 PURPOSE OF THE PROPOSED EXPANSION

When Nisqually Refuge was established in 1974, the original boundary was designed to protect the Delta from specific threats of development. During the ensuing 25 years, increased development has resulted in habitat loss and degradation throughout the Puget Sound area,

including the lower Nisqually watershed, contributing to declines of many fish and wildlife species. Refuge expansion would help alleviate the effects of increased habitat degradation, loss, and development pressures in adjacent parts of the lower watershed. Expanding the approved Refuge boundary would allow the Service to negotiate with willing participants within the new approved boundary to acquire lands or interests in land and water. Lands, or interests in lands acquired by the Service, would be managed as a part of the National Wildlife Refuge System (System). The System is the largest collection of lands specifically managed for fish and wildlife habitat. The needs of wildlife and their habitats come first on refuges, in contrast to other public lands managed for multiple uses.

The administration, management, and growth of the System are guided by the following goals: 1) preserve, restore, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered, 2) perpetuate migratory bird, inter-jurisdictional fish, and marine mammal populations, 3) preserve a natural diversity of fish, wildlife, and plants, 4) preserve and restore representative ecosystems of the United States, including the natural processes characteristic of those ecosystems, and 5) foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public uses. Such uses includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

The Nisqually Refuge falls within the North Pacific Coast Ecoregion. The Service's goal for the North Pacific Coast Ecoregion is to protect, restore, and enhance the function, structure, and species composition of ecosystems for fish and wildlife conservation and the continuing benefit of people by implementing an ecosystem approach to management. This goal will be attained to the degree that the Service, working through partnerships, can 1) minimize species extinction, 2) reverse population declines, 3) maintain and enhance healthy populations of native fish and wildlife, 4) provide people with healthy ecosystems, and 5) work with our partners and the public at all levels.

The objectives of the Ecoregion are to 1) maintain high biological productivity, reverse population declines, and recover federally listed species, 2) combine and coordinate Federal, State, local, tribal, and private watershed restoration efforts on a holistic ecosystem approach across ownership boundaries, 3) increase awareness and knowledge of fish and wildlife issues and ecosystem management, and 4) provide state-of-the-art biological data to resource managers and partners to restore functioning watersheds.

The expansion of the Nisqually Refuge would help achieve Ecoregion goals and objectives by 1) protecting and restoring habitat for declining populations of anadromous fish, including the federally listed chinook salmon and the federally listed bull trout, 2) enhancing and contributing to existing habitat protection efforts by the Nisqually Tribe, Fort Lewis Military Reservation, Thurston and Pierce counties, Nisqually River Council, Nisqually River Basin Land Trust, and local conservation organizations, 3) providing a diversity of native habitats that will maintain and enhance healthy populations of fish, wildlife, and plant species native to the Nisqually River delta, and 4) providing additional quality wildlife-dependent public use opportunities.

Refuge expansion would contribute to achieving Refuge goals including 1) to conserve, manage, restore, and enhance native habitats and associated plant and wildlife species representative of the Puget Sound lowlands with a special emphasis on migratory birds and salmon, 2) support recovery and protection efforts for Federal and State threatened and endangered species of concern, and their habitats, 3) provide quality environmental education opportunities focusing on fish, wildlife, and habitats of the Nisqually River delta and watershed, and 4) provide quality wildlife-dependent recreation, interpretation, and outreach opportunities to enhance public appreciation, understanding, and enjoyment of fish, wildlife, habitats, and cultural resources of the Nisqually River delta and watershed.

The authorities for the proposed expansion include the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754) and the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715d). The Fish and Wildlife Act of 1956 authorizes the Service to use funds made available under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4601-11) to acquire lands, waters, or interests therein for fish and wildlife conservation purposes. Federal monies used to acquire private lands through the Land and Water Conservation Fund are derived primarily from oil and gas leases on the outer continental shelf, excess motorboat fuel tax revenues, and the sale of surplus Federal property.

1.5 LAND PROTECTION METHODS

1.5.1 Willing Seller Policy

It is the policy of the Service to acquire lands from willing landowners. Landowners within the approved Refuge boundary who do not wish to sell their property or any other interest in their property are under no obligation to negotiate with or sell to the Service. In all acquisitions, the Service is required by law to offer 100 percent of fair market value, as determined by an appraisal completed by a professional, certified appraiser, in accordance with the Uniform Appraisal Standards for Federal Land Acquisitions.

The Service, like other Federal agencies, has the power of eminent domain. Eminent domain allows the use of condemnation to acquire lands and other interest in lands, such as easements, for the public good. The Service rarely uses this power. The Service typically is not compelled to buy specific land within a certain time frame.

Under the Uniform Relocation Assistance and Real Property Acquisition Policies Act, landowners who sell their property to the Service may be eligible for certain payments. Determinations are made on a case by case basis.

1.5.2 Habitat Protection Methods

A variety of habitat protection methods can be used to preserve fish and wildlife habitat. The actual method selected for any individual parcel will depend upon both the needs and desires of the landowner and the Refuge. If a mutual agreement cannot be reached, the landowner retains

full use, control, and responsibility for the property. Cooperative efforts with Fort Lewis could involve key partners, including the Nisqually Indian Tribe. Techniques to provide improved protection of USA Trust lands would be restricted to cooperative agreements.

Cooperative Agreements. The Service can enter into cooperative agreements with landowners to improve wildlife habitat management. Cooperative agreements may specify shared responsibilities, or a transfer of funds from the Service to another entity or vice-versa for management purposes. Cooperative agreements can be applied to land under any type of ownership.

Conservation Easements. Conservation easements transfer some, but not all property rights to the Service as specified by mutual agreement. Under a conservation easement, a landowner could agree not to engage in activities damaging to wildlife habitat resources, and/or the Service could manage the land for wildlife. The Service can acquire easements through purchase, donation, or exchange. The property owner retains all responsibility for paying property taxes. The Service could negotiate conservation easements on land under any type of ownership.

Fee Title Acquisition. A fee title interest is normally acquired when 1) the fish and wildlife resources on a piece of property require permanent protection that is not otherwise available, 2) the property is needed for development associated with public use, 3) a pending land use could otherwise harm wildlife habitats, or 4) purchase is the most practical and economical way to assemble small tracts into a manageable unit. Fee title acquisition transfers all property rights held by the landowner to the Federal government. A fee title interest may be acquired by purchase, donation, or exchange.

1.6 LAND PROTECTION PRIORITIES

Tables 1 and 2 list the lands within the preferred expansion boundary and within the approved Refuge boundary, respectively, by tract number, inset map, total acres, priority and possible method(s) for resource protection (ownership information is from the Pierce and Thurston County Assessor Offices and subject to change). Priorities (1, 2, 3, or 4) are assigned to each tract, 1 means high, 2 means moderate, 3 means low, and 4 means no longer of interest at this time. Tracts are being considered for acquisition because of their biological significance, existing or potential threats to wildlife habitat, significance of the area to refuge management and administration, and/or existing commitments to purchase or protect the land. Landowners within the proposed Refuge boundary and approved Refuge boundary may or may not wish to participate in the Service's habitat protection objectives, or may not wish to divest themselves from their land management responsibilities. Based on this, the final configuration of the acquired lands is impossible to predict. But because the parcels have been identified and the potential effects of converting those lands to refuge status have been assessed in the EIS, the delineated proposed expansion boundary will provide the Service with future habitat protection options if willing sellers and participants and available funds present themselves in the future.

1.7 COORDINATION

The Service worked with a variety of interested parties to identify issues and concerns associated with the proposed Refuge expansion. These interested parties included members of the public, interested private groups, landowners, elected officials, and State, Federal, Tribal, and local government agencies. The Service's public involvement activities included hosting public scoping meetings, developing and mailing planning updates, requesting information, undertaking consultations, and responding to inquiries. The Service provided information about the proposal to the media and other interested or affected parties throughout the public scoping period (EIS, Chapter 6).

1.8 SOCIAL AND CULTURAL IMPACTS

The current quality of life for communities and individuals around the proposed additions to the Refuge is expected to be the same or better as a result of the Refuge addition. Intensified management would increase habitat quality and improve wildlife use which would result in positive effects for wildlife observation, interpretation, and photography opportunities at the Refuge. Improvements will also enhance environmental education opportunities, particularly the opportunity to observe active habitat restoration/management activities. In addition, enhanced waterfowl and fish habitats may encourage more waterfowl and fish to use the delta, improving waterfowl hunting and fishing opportunities (EIS, Chapter 4, section 4.6.4.1).

The Refuge environmental education program would be expanded to accommodate up to 15,000 students per year. The trail length would be shortened from the current 5½- mile loop trail to a 3½- mile round trip (non-loop) trail but of improved quality with diversified viewing opportunities. A new eastside trail would also be constructed. A trail would be established on the East Bluff if appropriate lands were acquired. Approximately 191 acres of the Refuge would be open to a quality waterfowl hunting program. Walk-in hunting opportunities would be considered south of I-5 if sufficient lands were acquired to allow for adequate wildlife sanctuary and minimal conflicts with other priority public uses. Bank fishing opportunities would be investigated along McAllister Creek south of I-5, if appropriate sites were acquired. This would provide new bank fishing access to help compensate for the loss of McAllister Creek bank fishing north of I-5 as a result of estuarine restoration, although the scheduled closure of the McAllister Creek Hatchery (July 2002) would reduce fishing opportunity, thereby lessening the effects of this loss. New fishing access at Luhr Beach and Nisqually River would be provided. Overall, the fishing opportunity at Nisqually Refuge is not expected to decrease (EIS, Chapter 4, section 4.6.4.3).

The Nisqually Indian Tribe would continue to hunt, fish, and gather. There are no anticipated adverse health or environmental effects to the Nisqually Indian Tribe from refuge expansion (EIS, Chapter 4, section 4.8.1).

Recreation economic expansion is expected to be proportionate to increased recreation and public access resulting from Refuge expansion. Increased revenue for the Refuge and region would depend on what lands were acquired. The effects of new facilities, new trails, improved

habitat, and more student visits would be expected to contribute to an increasing trend in visitation, producing increased economic benefits (EIS, Chapter 4, section 4.8.4.4).

Approximately 1,100 acres of agricultural land in Thurston County and 190 acres in Pierce County could be acquired for conservation uses. Within Thurston County, approximately 840 acres are within the existing Purchase of Development Rights program. Expansion of the Refuge could result in the reduction of grazing opportunities and the conversion of some agricultural lands to wetlands and riparian habitats, but the impact to the overall agricultural economies of these counties would be minor.

The salary and operating costs for the Refuge with a fully implemented Comprehensive Conservation Plan would be approximately \$1.8 million dollars, \$1.2 million above current expenditure, which would be directed towards the Refuge payroll and operational costs and contribute directly to the regional economy. There would be an indirect support of approximately 55 jobs in the regional economy (EIS, Chapter 4, section 4.8.3.4). In the context of the robust economies of Thurston and Pierce counties, these increases would be minor.

Table 1. Land Protection Priorities for Expansion Area					
TRACT #	OWNER NAME	Figure #	PRIORITY	ACRES	PROTECTION METHODS
1,a,b	USA-ARMY	3,4,5	3	1083.00	Fee, Coop Agree, Easement
2f,g	WASH STATE-DEPT OF GAME	2,6	3	3.72	Coop Agree, Fee
2h	WASH-FISHERIES DEPT	4	3	8.09	Coop Agree
2i	WASH STATE-FISH HATCHERY	5	3	8.09	Coop Agree
3	THURSTON, COUNTY OF	3	3	0.24	Fee, Coop Agree, Easement
3a	THURSTON, COUNTY OF	4	3	6.06	Fee, Coop Agree, Easement
4	LACEY, CITY OF	4	3	0.18	Coop Agree
5	OLYMPIA, CITY OF	5	3	176.33	Coop Agree
6	FIRE DISTRICT #3	3	3	1.00	Fee, Coop Agree, Easement
12c,d	WEYERHAEUSER	2	1	175.24	Fee, Coop Agree, Easement
19c,d,g,h	NISQUALLY INDIAN TRIBE	2,5	3	419.72	Easement
51	HOLLISON, ROBERT AND KATHLEEN	2	1	18.74	Fee, Coop Agree, Easement
52	BENNAR, RAY AND GLENDA	2	2	1.76	Fee, Coop Agree, Easement
53	LEIGH, JOANN	2	2	1.15	Fee, Coop Agree, Easement
54	MEGEE, KATHLEEN	2	2	2.00	Fee, Coop Agree, Easement
55	MCBRIDE, ALBERT E. JR	2	2	12.27	Fee, Coop Agree, Easement
56	NISQUALLY RIVER LAND TRUST	2	1	12.99	Fee, Coop Agree, Easement
57	Unknown	2	1	unk	Fee, Coop Agree, Easement
58,a	BRIDGES, TERESA M	3	2	99.63	Fee, Coop Agree, Easement
59	WALKER, LESTER B	3	3	0.69	Fee, Coop Agree, Easement
60	SCOTT, CINDY	3	3	0.88	Fee, Coop Agree, Easement
61	ALVESTAD, CAREY D ETAL	3	3	0.81	Fee, Coop Agree, Easement
62	GOTTFRIEDSON, HENRY F/ALISON K	3	3	1.00	Fee, Coop Agree, Easement
63	MATHEWS, MAUREEN H	3	3	1.02	Fee, Coop Agree, Easement
64	DERICKSON, DOUGLAS	3	3	0.24	Fee, Coop Agree, Easement
65	TAYLOR, GARY/JANET	3	3	0.47	Fee, Coop Agree, Easement
66	FRANK, WILLIE	3	3	6.00	Fee, Coop Agree, Easement
67	BLACK, JEFFREY S/CONNIE M	3	3	0.52	Fee, Coop Agree, Easement
68	CLEMENT, KENDALL S & MARIBETH	3	3	1.00	Fee, Coop Agree, Easement
69	BRUDER, TERESA/RUSS	3	3	1.18	Fee, Coop Agree, Easement
70	ROESSNER, DEBRA D	3	3	0.92	Fee, Coop Agree, Easement
71	LOVIK, DENA L	3	3	0.61	Fee, Coop Agree, Easement
72	BOHREN, PATTI	3	3	1.36	Fee, Coop Agree, Easement
73	COLE, CLARA M	3	2	3.61	Fee, Coop Agree, Easement
74	MILLER, RHETT	3	2	0.83	Fee, Coop Agree, Easement
75	CAMPBELL, LOIS M	3	2	3.40	Fee, Coop Agree, Easement
76	MC GILLIS, JOHN W	3	3	0.50	Fee, Coop Agree, Easement
77	LOSEY, DAVID L/SHARON	3	3	1.00	Fee, Coop Agree, Easement
78	GRASSI, NELLO L	3	2	4.12	Fee, Coop Agree, Easement
79	TATE, JOHN & JUANITA D	3	2	13.79	Fee, Coop Agree, Easement
80	LYON, MICHAEL/JUDY	3	3	0.49	Fee, Coop Agree, Easement
81	BREDESEN, CHRISTOPHER L.	3	2	11.80	Fee, Coop Agree, Easement
82	DOERING, AARON M/AMY L	3	2	0.50	Fee, Coop Agree, Easement
83	PIETRZAK, PAUL R	3	2	1.03	Fee, Coop Agree, Easement
84,a	SAYONC, BETTY L	3	2	11.91	Fee, Coop Agree, Easement
85	LEAMAN, H DENNIS	3	2	2.11	Fee, Coop Agree, Easement
86	COOTS, DEAN E	3	2	2.72	Fee, Coop Agree, Easement
87	SNELL, LLOYD E & ROSE M	3	1	5.56	Fee, Coop Agree, Easement
88	NYE, TIMOTHY S JR	3	1	1.01	Fee, Coop Agree, Easement
89	SCHMAUDER, ALLEN	3	1	0.50	Fee, Coop Agree, Easement
90	COLLINS, JAMES R/JODI K	3	1	0.86	Fee, Coop Agree, Easement

Table 1. Land Protection Priorities for Expansion Area					
TRACT#	OWNER NAME	Figure#	PRIORITY	ACRES	PROTECTION METHODS
91	ATTWOOD, SALLY J	3	1	1.17	Fee, Coop Agree, Easement
92	ATTWOOD, LARRY E	3	1	1.40	Fee, Coop Agree, Easement
93	KRISHNAMOORTI, SIGNA R	3	1	7.61	Fee, Coop Agree, Easement
94	WARREN, DOROTHY G	3	2	7.47	Fee, Coop Agree, Easement
95	SCOTT, CHAE AN	3	2	7.18	Fee, Coop Agree, Easement
96	HONG, CHANLIP MAN	3	2	10.03	Fee, Coop Agree, Easement
97	SAYONC, HELEN F	3	2	3.58	Fee, Coop Agree, Easement
98	HILL, DOROTHY R	3	2	2.76	Fee, Coop Agree, Easement
99	CHOJNOWSKI, DANIEL/PATRICIA	3	2	1.71	Fee, Coop Agree, Easement
100	BROWN, JAMES C	3	2	7.69	Fee, Coop Agree, Easement
101	HUNGERFORD, WILLIAM E	3	2	12.86	Fee, Coop Agree, Easement
102	MC QUEEN, BRUCE & PATRICIA	3	3	0.78	Fee, Coop Agree, Easement
103,a	DAVIS, SCOTT A	3,4	3	3.55	Fee, Coop Agree, Easement
104	DAVIS, KARIN K	3	3	2.29	Fee, Coop Agree, Easement
105	GLASTETTER, HOWARD/COLLEEN	3	3	1.52	Fee, Coop Agree, Easement
106	ALLEN, DONNA L	3	3	0.21	Fee, Coop Agree, Easement
107	FLYNN, MARGARET E	3	3	0.22	Fee, Coop Agree, Easement
108	BELT ENT INC	3	3	0.23	Fee, Coop Agree, Easement
109	BREWER, LARRY	3	3	0.18	Fee, Coop Agree, Easement
110	CHURILLA, ROBERT J/GLENDA F	3	3	0.31	Fee, Coop Agree, Easement
111	BALCOM, MABEL I	3	3	1.02	Fee, Coop Agree, Easement
112	GEORGE, HAROLD F	3	3	1.62	Fee, Coop Agree, Easement
113	WICK, ROLF F	3	3	0.54	Fee, Coop Agree, Easement
114	SHERMAN, JACK E/CARRIE L	3	3	0.91	Fee, Coop Agree, Easement
115	CLINTON, JON P	3	3	0.23	Fee, Coop Agree, Easement
116	SHEAK, MARGARET	3	3	0.53	Fee, Coop Agree, Easement
117	HUNGERFORD, WILLIAM E ETUX	3	3	0.02	Fee, Coop Agree, Easement
118	RODRIGUES, DENNIS/IRENE	3	3	0.50	Fee, Coop Agree, Easement
119	CHRISTOFFER, JEROLD F ETUX	4	2	2.00	Fee, Coop Agree, Easement
120	GOHEEN, BRYAN C/SYLVIA	4	3	0.66	Fee, Coop Agree, Easement
121	BODEN, DAVID W	4	3	0.51	Fee, Coop Agree, Easement
122	YOUNG, RICKEY M/GISELA	4	3	0.45	Fee, Coop Agree, Easement
123	CHAMBERLAIN, JESSIE M ET AL	4	3	0.54	Fee, Coop Agree, Easement
124	DEAN, MARY LOUISE	4	3	0.30	Fee, Coop Agree, Easement
125	LIPSCOMB, C JEAN	4	3	0.39	Fee, Coop Agree, Easement
126	COOPER, RUBY M	4	3	0.58	Fee, Coop Agree, Easement
127	WATSON, ELIZABETH	4	3	1.20	Fee, Coop Agree, Easement
128	SMITH, JOANN M	4	3	0.63	Fee, Coop Agree, Easement
129	LEGWOLD, ROCKY L	4	1	0.52	Fee, Coop Agree, Easement
130	ANDERSON, KENNETH A	4	3	0.37	Fee, Coop Agree, Easement
131	ANDERSON, LEE D ETAL	4	3	0.24	Fee, Coop Agree, Easement
132	SCHRUM, JOSEPH A/DEVON L	4	3	0.12	Fee, Coop Agree, Easement
133	WATTS, KELLY L/SUSAN A	4	3	0.32	Fee, Coop Agree, Easement
134	MELBY, WARD R ETAL	4	1	0.81	Fee, Coop Agree, Easement
135	PHILLIPS, DOUGLAS S	4	1	0.34	Fee, Coop Agree, Easement
136	STENKLYFT, JAMES A	4	1	0.27	Fee, Coop Agree, Easement
137	NISQUALLY SPORTSMEN CLUB	3,5	1	68.94	Fee, Coop Agree, Easement
138	ANDERSON, LAURIE	5	1	15.16	Fee, Coop Agree, Easement
139	EBERLING, MARSHALL E	5	2	0.97	Fee, Coop Agree, Easement
140	LONERGAN, GEORGE A	5	1	5.00	Fee, Coop Agree, Easement

Table 1. Land Protection Priorities for Expansion Area					
TRACT#	OWNER NAME	Figure#	PRIORITY	ACRES	PROTECTION METHODS
141	WESTBERG, RAY	5	2	1.06	Fee, Coop Agree, Easement
142	CORP OF LATTER DAY SAINTS	5	1	38.34	Fee, Coop Agree, Easement
143	BLENCOE, LUCILLE M	5	1	37.94	Fee, Coop Agree, Easement
144,a	REESE, GARY FULLER	3,5	1	89.04	Fee, Coop Agree, Easement
145	BABARE, GEORGE M	5	1	107.48	Fee, Coop Agree, Easement
146	WASH DIV INV CORP	3,4	1	0.74	Fee, Coop Agree, Easement
149,a	STOKER, GERRIT	3	1	74.25	Fee, Coop Agree, Easement
150	NISQUALLY PLAZA RV PARK	3	3	1.80	Fee, Coop Agree, Easement
151,a,b	ELWESS, GENE/ANNIE	3	3	5.96	Fee, Coop Agree, Easement
152	SINGH, BAJINDER ETAL	3	3	0.51	Fee, Coop Agree, Easement
153,a	JACOBS, JAMES A	3	3	1.09	Fee, Coop Agree, Easement
154	THREATT, LORENA E	3	3	0.51	Fee, Coop Agree, Easement
155	ALL MARINE INC	3	3	0.64	Fee, Coop Agree, Easement
156	BRESSI, PAUL M	3	3	0.46	Fee, Coop Agree, Easement
157	SCHILTER, JEFF AND STEPHANIE	3	2	5.16	Fee, Coop Agree, Easement
158,a,b	SCHILTER, GOTTFRIED J	3	1	73.53	Fee, Coop Agree, Easement
159	INDUSTRIAL FORESTRY	3	1	9.36	Fee, Coop Agree, Easement
160	HAIDUCEK, TIMOTHY J/JOY E	3	2	2.75	Fee, Coop Agree, Easement
161	Unknown	3	2	0.72	Fee, Coop Agree, Easement
162	Unknown	3	2	0.46	Fee, Coop Agree, Easement
163	GABLE, ADRIAN L	3	2	0.25	Fee, Coop Agree, Easement
164	WESTLIN, BERTHA L ESTATE	3	2	1.66	Fee, Coop Agree, Easement
165,a-d	THOMSEN JESS INC	3,5	1	740.06	Fee, Coop Agree, Easement
166	TORDEN, THOMSEN, INC	3,5	1	68.36	Fee, Coop Agree, Easement
167	ROLLER, JON/GAIL	5	1	6.54	Fee, Coop Agree, Easement
168	HILL, JAMES J	3,5	1	0.50	Fee, Coop Agree, Easement
169	HILL, PAUL	3,5	1	1.00	Fee, Coop Agree, Easement
170,a,b	SCHOLS, HERMAN	3,5	1	124.02	Fee, Coop Agree, Easement
171	BROUGH, ROGER D	5	2	1.00	Fee, Coop Agree, Easement
172	KOHLBERG, DAVID/ELIZABETH	5	1	1.78	Fee, Coop Agree, Easement
173	LONCAR, PAUL	5	1	5.50	Fee, Coop Agree, Easement
174	VO, TRI M/TRINH, DUNG K	5	1	43.94	Fee, Coop Agree, Easement
175,a	NIELSEN PACIFIC LTD	5	2	290.43	Fee, Coop Agree, Easement
176	WARD, HUGO F	5	1	40.00	Fee, Coop Agree, Easement
177	MYERS, JAMES H	5	1	40.17	Fee, Coop Agree, Easement
178	PIGMAN, DEAN A	5	1	9.80	Fee, Coop Agree, Easement
179	WILLETTE, JON F/GUILA K	5	1	7.86	Fee, Coop Agree, Easement
180	LOFTIN, FRED E	5	3	4.18	Fee, Coop Agree, Easement
181	LOFTIN, CLAIRE	5	2	3.55	Fee, Coop Agree, Easement
182,a	SMIT, JULIE L	5	3	3.80	Fee, Coop Agree, Easement
183,a	BARATZ, JULIUS/LOIS TSTEEs	5	3	6.29	Fee, Coop Agree, Easement
184	BERG, JERI L	5	2	97.59	Fee, Coop Agree, Easement
185	GATZKA, JOSEPH A.	5	2	0.73	Fee, Coop Agree, Easement
186,a,b	MCALLISTER CREEK ASSN	5	2	1.06	Fee, Coop Agree, Easement
187	SUTTON, ROBERT JR./CRISTAN	5	2	0.90	Fee, Coop Agree, Easement
188	SELDOMRIDGE, CHARLES B.	5	2	1.17 ++	Fee, Coop Agree, Easement
189	OSTREICH, TROY D.	5	2	0.34	Fee, Coop Agree, Easement
190	DONALLY, ELFRIEDE H.	5	2	0.77	Fee, Coop Agree, Easement
191	MATTESON, JON MICHAEL	5	2	0.22	Fee, Coop Agree, Easement
192	EVANS, WILLIAM/KATHLEEN	5	2	0.59	Fee, Coop Agree, Easement
193,a	BRAGET TRUSTEE, AGNES	5	2	1.54	Fee, Coop Agree, Easement

Table 1. Land Protection Priorities for Expansion Area					
TRACT#	OWNER NAME	Figure#	PRIORITY	ACRES	PROTECTION METHODS
194	BOEHM, FREDERICK/MICHELLE	5	2	0.39	Fee, Coop Agree, Easement
195	ZEUTENHORST, PHILLIP	5	2	0.44	Fee, Coop Agree, Easement
196	CIRRITO, CAROLYN B.	5	2	0.64	Fee, Coop Agree, Easement
197	PITTMON, JOANN/DOUGLAS	5	2	0.43	Fee, Coop Agree, Easement
198	MACY, MARSHALL/DEBORAH	5	2	0.82	Fee, Coop Agree, Easement
199	KOHLENBERG, DAVID/ELIZABETH	5	2	1.03	Fee, Coop Agree, Easement
200	SCHOLS, MARIANN J.	5	2	0.60	Fee, Coop Agree, Easement
Table 2. Land Protection Priorities for Inholdings					
TRACT #	OWNER NAME	Figure #	PRIORITY	ACRES	PROTECTION METHODS
19,a,b	NISQUALLY INDIAN TRIBE	6	1	330	Coop Agree
2, a-c	WASH-GAME DEPT	6	1	625	Coop Agree
13	CROUSE, CARL N/GLORIA	6	1	1	Fee, Coop Agree, Easement
16b,c	BABARE, ROBERT	6	1	34	Fee, Coop Agree, Easement
17	MOE, GREGORY	6	1	1	Fee, Coop Agree, Easement
22	EAGLE CLIFFS SUBDIVISION	6	4	30	
25	BORLEY, CLARENCE	6	1	3	Fee, Coop Agree, Easement
27	MARTIN, JAMES A/MARY D	6	1	4	Fee, Coop Agree, Easement

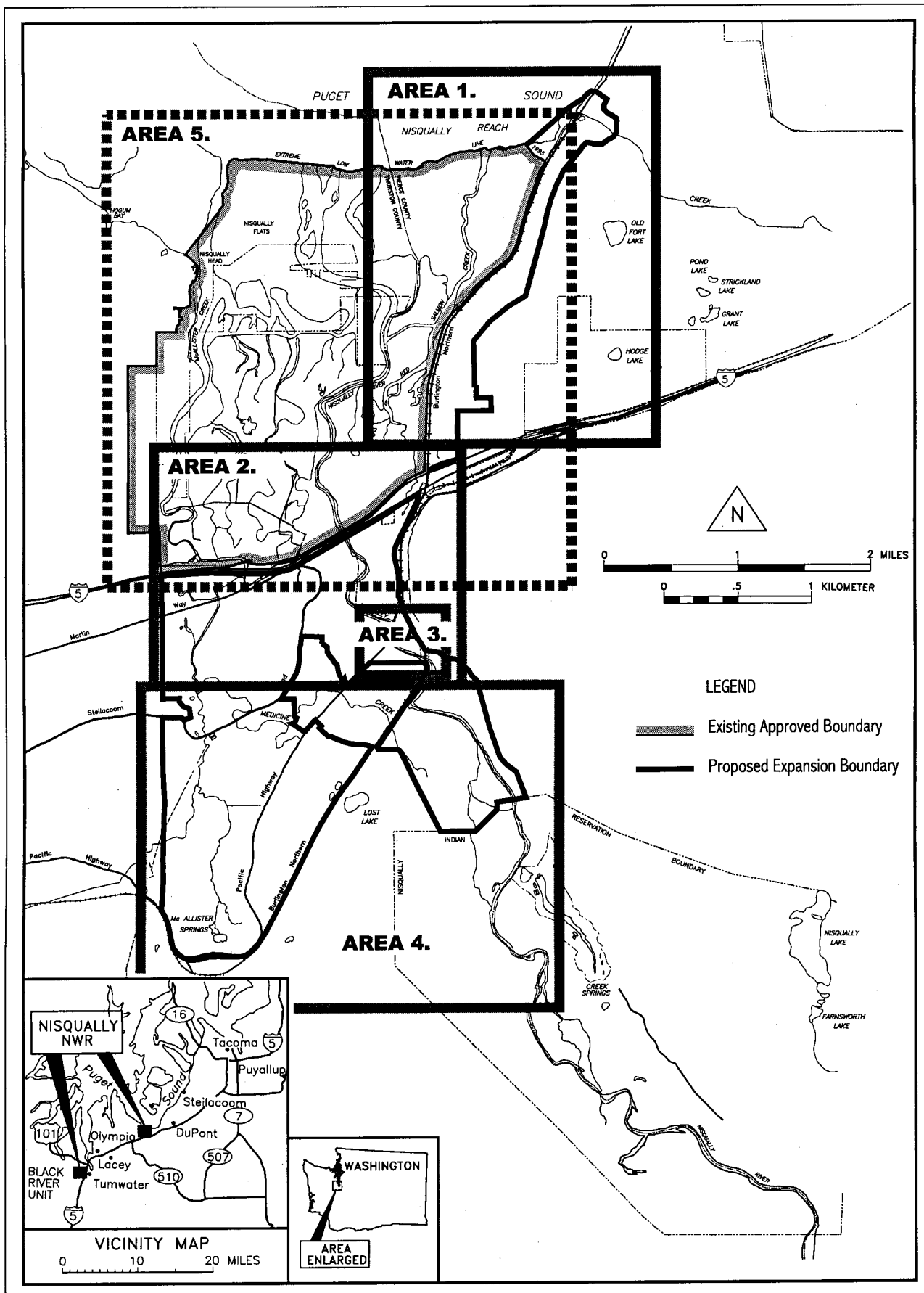


FIGURE 1. NISQUALLY NATIONAL WILDLIFE REFUGE TRACT MAP INDEX

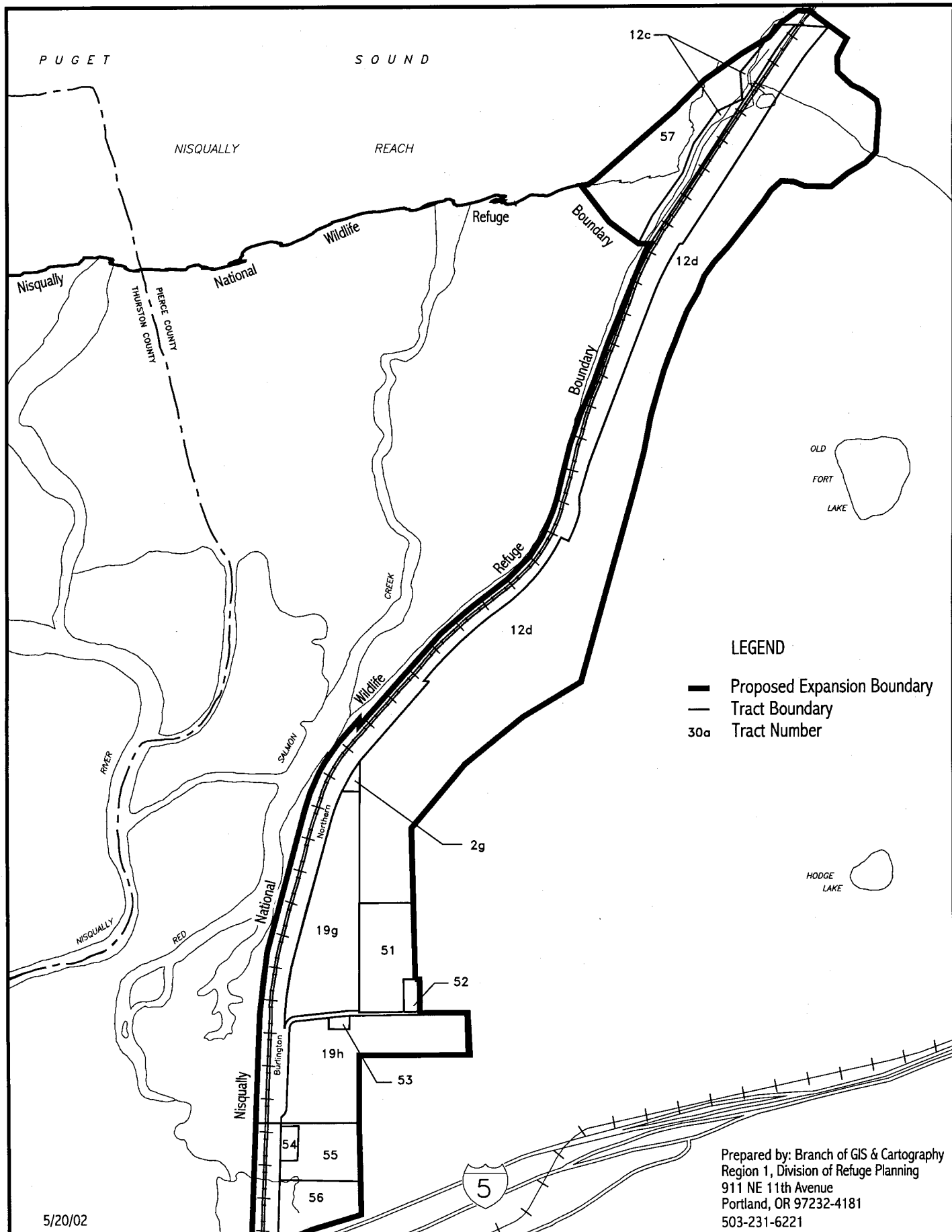


FIGURE 2. AREA 1. TRACT MAP

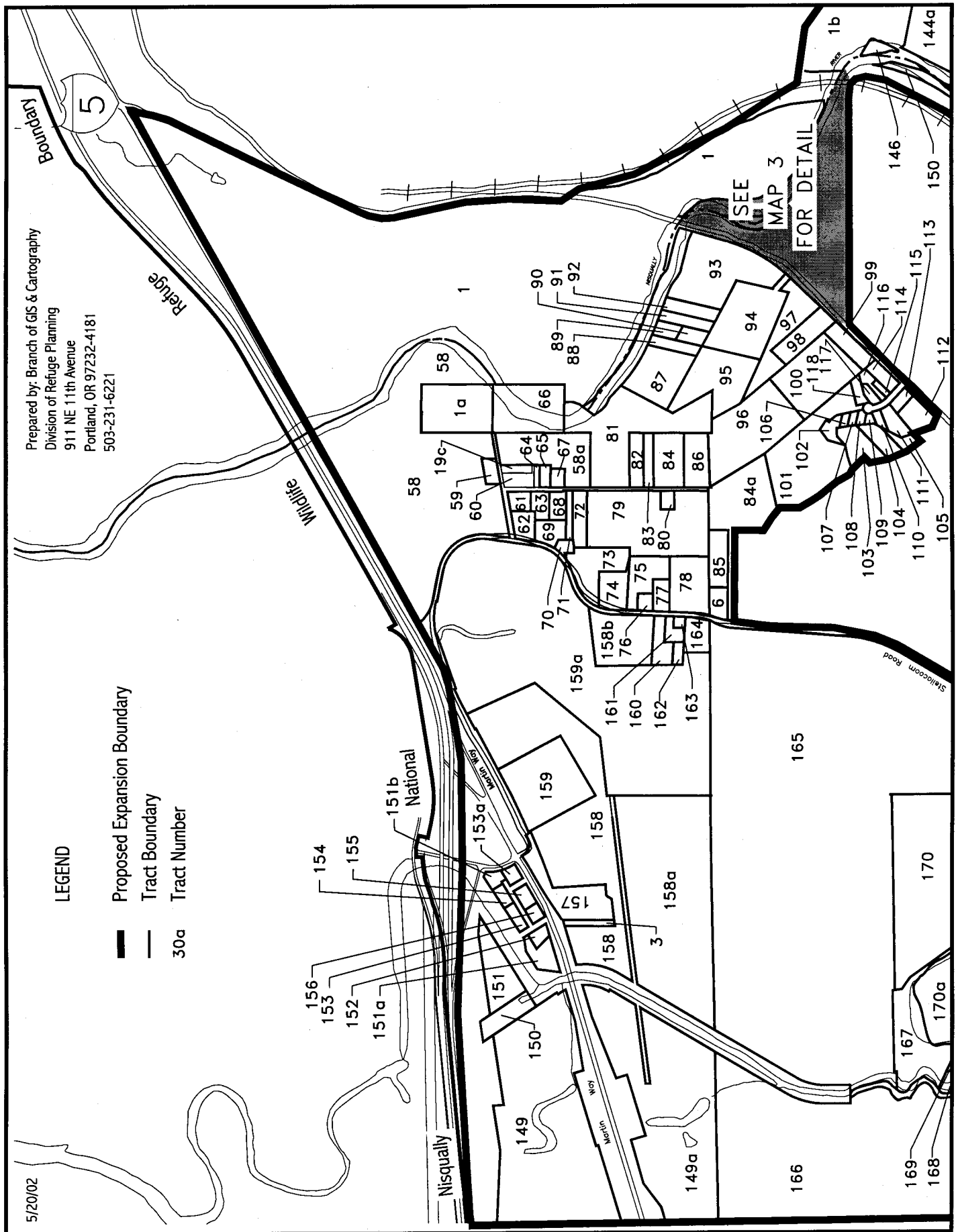
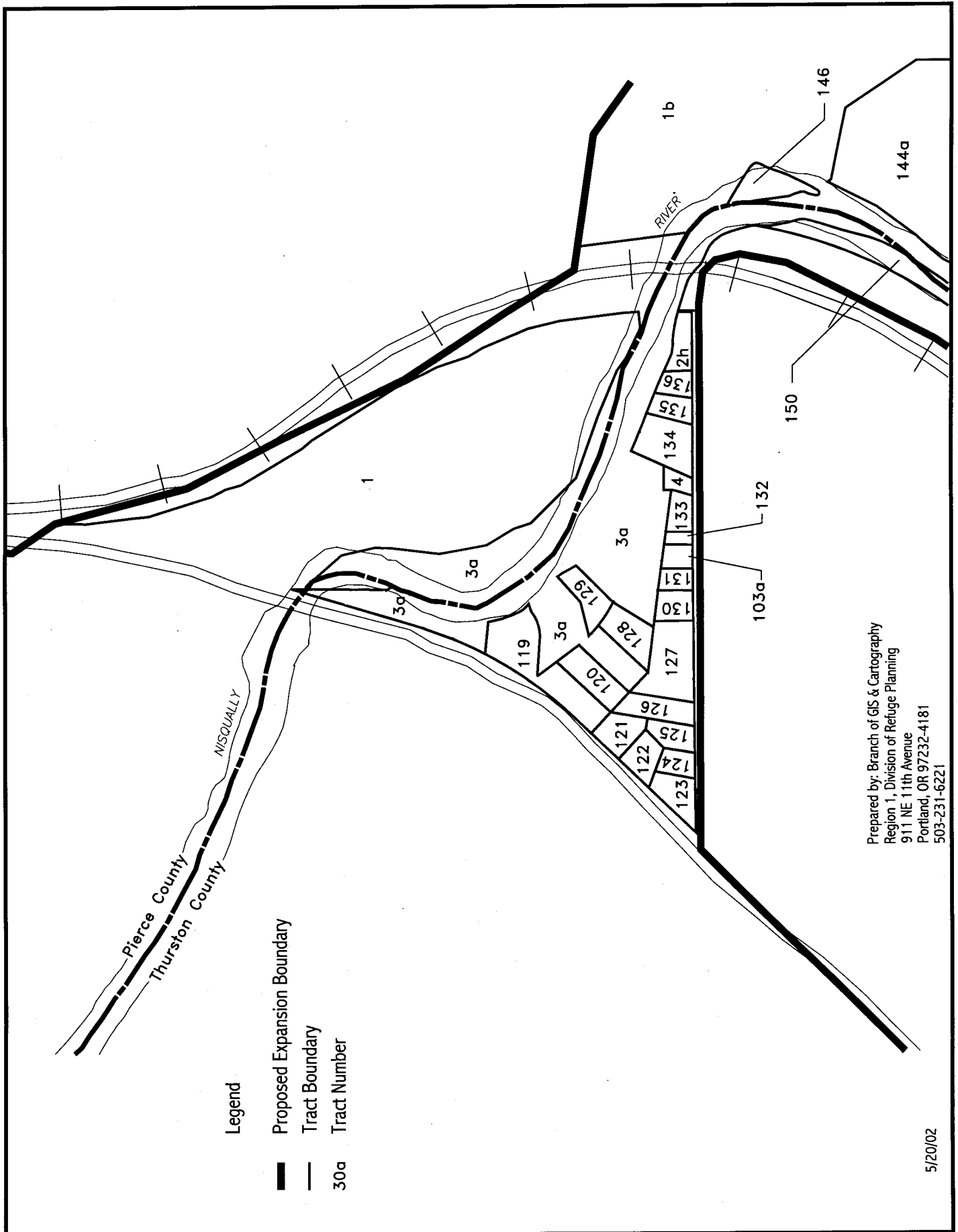


FIGURE 3. AREA 2. TRACT MAP



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FIGURE 4. AREA 3. TRACT MAP

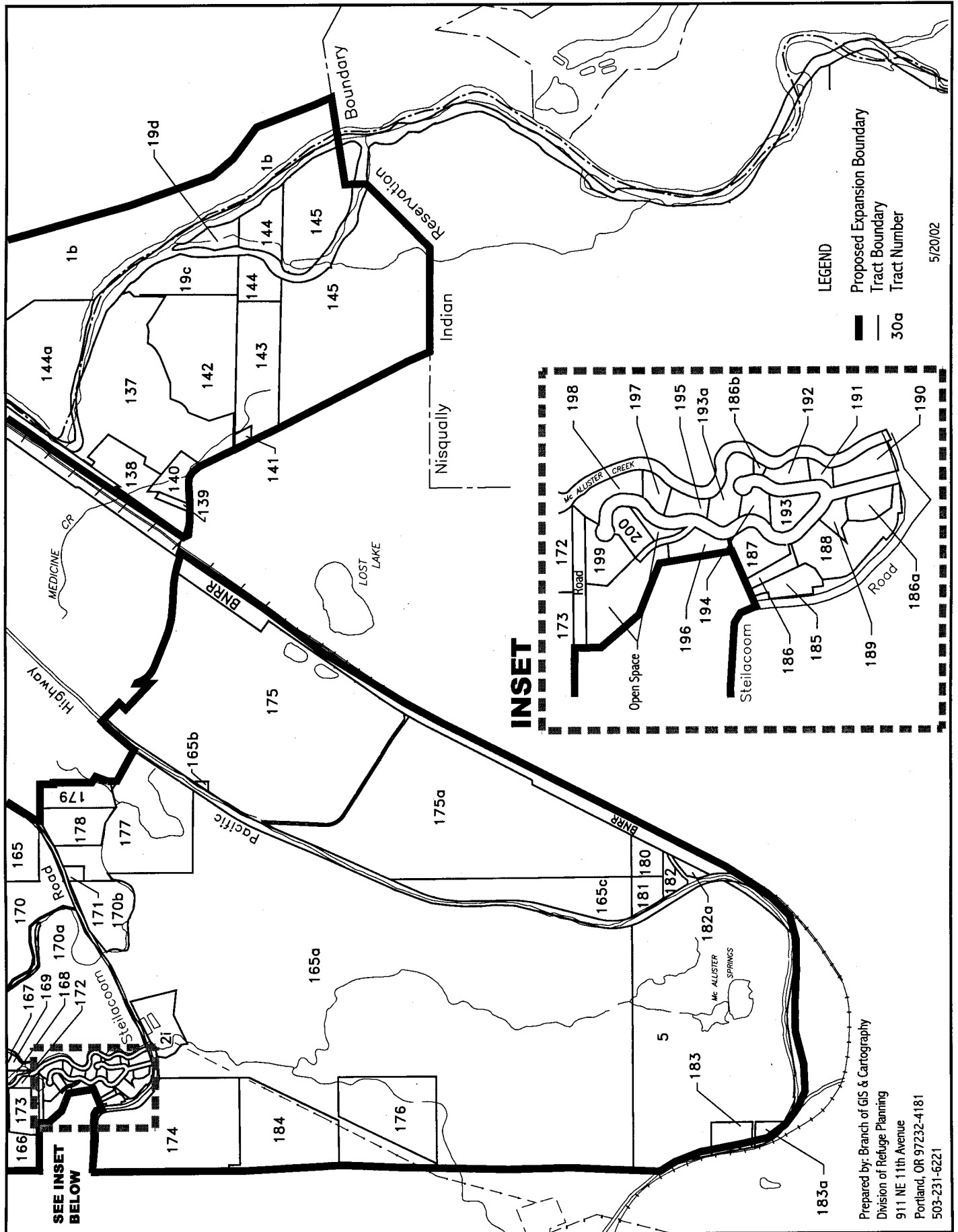
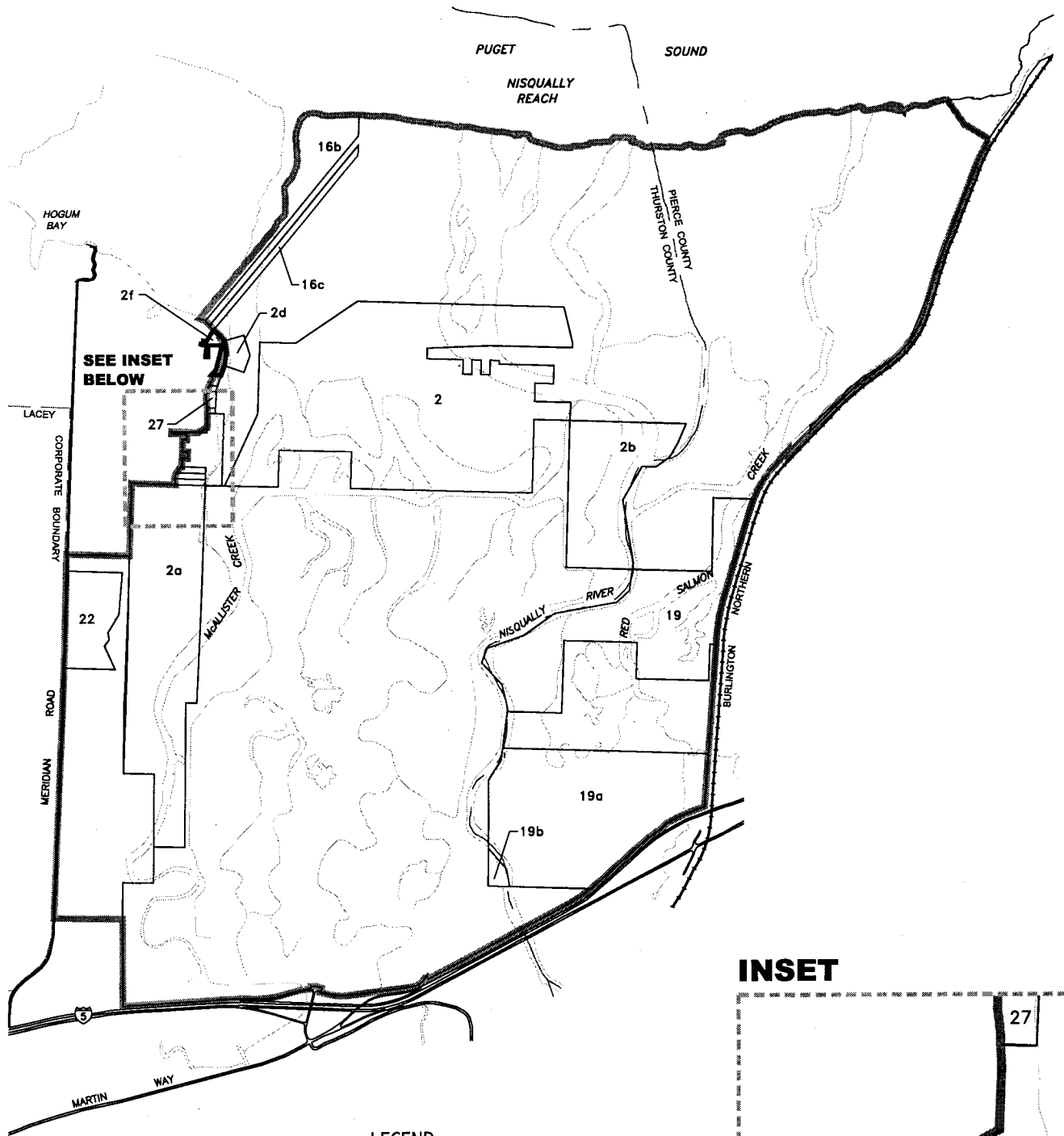





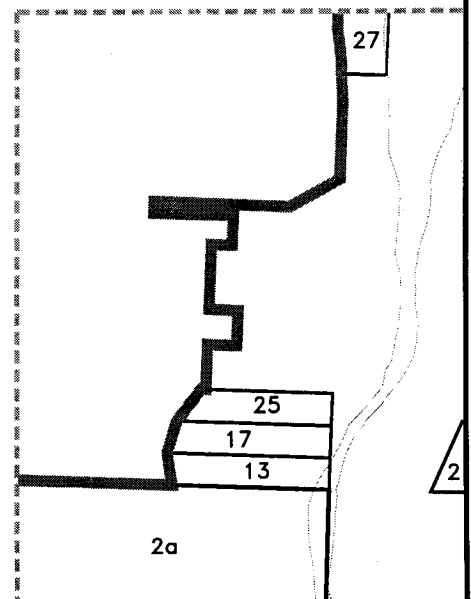
FIGURE 5. AREA 4. TRACT MAP



LEGEND

-  Proposed Expansion Boundary
-  Approved Refuge Boundary
-  Tract Boundary
- 30a Tract Number

INSET



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FIGURE 6. AREA 5. TRACT MAP